

## NOTES

***Ceratophyllum muricatum* Cham. subsp. *muricatum* (Ceratophyllaceae), a new record for Australia**

Until now all authors of treatments of the genus *Ceratophyllum* L. have recognised only one species from Australia, *Ceratophyllum demersum* L., although Aston (1973) suggested that *Ceratophyllum submersum* L. "may eventually be found in Australia, particularly in the north". Wilmot-Dear (1985) apparently did not see Australian specimens of the genus held in Australian herbaria as no Australian herbarium is listed amongst those from which material was borrowed and only one Australian specimen (held at K) is cited. Similarly Les (1986; 1988a; 1988b; 1989) apparently did not borrow material from Australian herbaria for his work on the genus.

Examination of Australian material of *Ceratophyllum*, while preparing the treatment of Ceratophyllaceae for the Flora of Australia project, led to the separation of three specimens, Henshall 2036, Jacobs 4048 and Goodrick 3545 as being distinct from the remainder of the Australian material. These specimens are a good match for a New Guinea specimen, Brass 6458, which was cited by Wilmot-Dear (1985) as *C. submersum* var. *echinatum* (A. Gray) Wilmot-Dear and cited by Les (1985) as *C. submersum* L. Les (1989) showed *C. submersum* L. is restricted to Europe, North America and northern Africa and placed specimens from New Guinea, previously included under *C. submersum* L., under *C. muricatum* Cham. subsp. *muricatum*.

Two species are here recognised from Australia, *C. demersum* L. and *C. muricatum* Cham. subsp. *muricatum*.

The important distinguishing features of the two species are summarised in the key below. *C. muricatum* subsp. *muricatum* is found in tropical and subtropical Asia and Africa and in Australia from the three localities given below. *C. demersum* is widespread in most tropical and temperate parts of the world and in Australia is found in northern and eastern coastal and subcoastal areas from near Broome to near Melbourne and along the Murray River.

1. Leaves dichotomously branched 1 or 2 times, occasionally a few dichotomously branched 3 times. Fruits not winged, surface smooth though usually with dark glandular dots . . . . . ***C. demersum***  
 Leaves dichotomously branched 3 or 4 times. Fruits winged, surface often with raised tubercles . . . . . ***C. muricatum* subsp. *muricatum***

***C. muricatum* subsp. *muricatum***

**Specimens examined:** Papua New Guinea. c. 5 miles [8km] north-west of Hisiu village, Kairuku Subdistrict, Central District, Aug 1962, Darbyshire 817 (BRI; G.K n.v.); Coast between Oriomo and Fly Rivers, Apr 1936, Brass 6458 (BRI; BM n.v.). Australia. Northern Territory. Barabil Ck, 12°39'S, 132°52'E, Jun 1978. Henshall 2036 (DNA, MEL). Queensland. NORTH KENNEDY DISTRICT: Bowen, 20°01'S, 148°15'E, May 1981, Jacobs 4048 (NSW). New South Wales. Deep Creek, Upper Coldstream via Wamarra [28°53'S, 152°46'E], Mar 1968, Goodrick s.n. (NSW).

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